Appendix Table 1. Age-Adjusted Female Suicide Rates by Mechanism for Census Division by Urbanization Level, 2014–2018

Census divisions[c] by urbanization level[d]	Age-adjusted female suicide rates[a] (95% CI) by mechanism[b]		
	Suffocation	Firearm	Drug poisoning
Overall			
Large metro	1.87 (1.83, 1.92)	1.57 (1.53, 1.61)	1.75 (1.71, 1.79)
Small/Medium metro	2.19 (2.12, 2.26)	2.72 (2.64, 2.79)	2.24 (2.17, 2.30)
Non-metro	2.27 (2.17, 2.37)	3.54 (3.42, 3.66)	2.15 (2.06, 2.25)
New England			
Large metro	2.32 (2.09, 2.56)	0.42 (0.33, 0.52)	1.69 (1.50, 1.89)
Small/Medium metro	2.25 (1.97, 2.53)	0.88 (0.71, 1.05)	2.05 (1.80, 2.30)
Non-metro	2.34 (1.81, 2.87)	2.58 (2.04, 3.13)	2.98 (2.42, 3.54)
Middle Atlantic			
Large metro	1.86 (1.75, 1.97)	0.57 (0.51, 0.62)	1.41 (1.32, 1.50)
Small/Medium metro	2.21 (1.99, 2.44)	1.48 (1.31, 1.66)	1.97 (1.76, 2.17)
Non-metro	2.08 (1.69, 2.48)	2.36 (1.95, 2.77)	2.15 (1.75, 2.55)
East North Central			
Large metro	1.92 (1.80, 2.04)	1.51 (1.40, 1.61)	1.66 (1.55, 1.77)
Small/Medium metro	2.21 (2.03, 2.40)	2.02 (1.85, 2.19)	2.24 (2.06, 2.43)
Non-metro	2.12 (1.89, 2.36)	2.28 (2.05, 2.52)	2.14 (1.92, 2.36)
West North Central			
Large metro	2.32 (2.09, 2.56)	1.97 (1.76, 2.19)	2.32 (2.09, 2.55)
Small/Medium metro	2.78 (2.50, 3.06)	2.17 (1.93, 2.41)	2.11 (1.87, 2.35)
Non-metro	2.89 (2.58, 3.20)	2.54 (2.26, 2.82)	1.95 (1.70, 2.20)
South Atlantic			
Large metro	1.59 (1.50, 1.68)	1.97 (1.87, 2.07)	1.85 (1.76, 1.94)
Small/Medium metro	1.85 (1.72, 1.98)	3.43 (3.26, 3.60)	2.35 (2.21, 2.49)
Non-metro	1.45 (1.25, 1.65)	3.91 (3.59, 4.23)	2.01 (1.78, 2.23)
East South Central			
Large metro	1.41 (1.20, 1.62)	3.04 (2.74, 3.35)	1.60 (1.38, 1.82)
Small/Medium metro	1.57 (1.37, 1.78)	3.71 (3.40, 4.01)	1.59 (1.39, 1.78)
Non-metro	1.69 (1.45, 1.93)	4.26 (3.90, 4.62)	1.53 (1.31, 1.75)
West South Central			
Large metro	1.64 (1.52, 1.75)	2.57 (2.42, 2.72)	1.51 (1.39, 1.62)

Small/Medium metro	1.82 (1.65, 1.99)	3.47 (3.24, 3.70)	1.81 (1.65, 1.98)
Non-metro	2.06 (1.79, 2.32)	4.66 (4.28, 5.05)	2.02 (1.76, 2.27)
Mountain			
Large metro	2.49 (2.29, 2.70)	3.18 (2.95, 3.41)	3.22 (2.99, 3.45)
Small/Medium metro	3.05 (2.80, 3.31)	3.99 (3.70, 4.28)	3.76 (3.48, 4.04)
Non-metro	3.55 (3.12, 3.98)	5.38 (4.86, 5.90)	3.14 (2.74, 3.54)
Pacific			
Large metro	1.96 (1.87, 2.06)	0.95 (0.88, 1.01)	1.64 (1.55, 1.72)
Small/Medium metro	2.43 (2.25, 2.62)	2.03 (1.87, 2.20)	2.08 (1.91, 2.25)
Non-metro	3.60 (3.06, 4.13)	3.93 (3.39, 4.46)	2.80 (2.37, 3.24)

[a]Age-adjusted rates per 100,000 person-years were calculated using the direct method and the year 2000 U.S. standard population. Only residents aged ≥10 years were included in the data.

[b]Firearm suicides were identified by the ICD-10 underlying-cause-of-death codes X72-X74; suffocation suicides were identified by the ICD-10 underlying-cause-of-death code X70; drug poisoning suicides were identified by the ICD-10 underlying-cause-of-death codes X60-X64. These 3 specific mechanisms represent the 3 leading causes of suicide, but do not cover all suicides.

[c]The 9 U.S. Census Bureau divisions are defined follows, New England (CT, ME, MA, NH, RI, VT), Middle Atlantic (NJ, NY, PA), East North Central (IL, IN, MI, OH, WI), West North Central (IA, KS, MN, MO, NE, ND, SD), South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV), East South Central (AL, KY, MS, TN), West South Central (AR, LA, OK, TX), Mountain (AZ, CO, ID, MT, NM, NV, UT, WY), and Pacific (AK, CA, HI, OR, WA).

[d]The 2013 National Center for Health Statistics 6-level urban-rural classification scheme for counties included large central metro: part of a metropolitan statistical area with ≥1 million population and covers a principal city; large fringe metro: part of a metropolitan statistical area with ≥1 million population but does not cover a principal city; medium metro: part of a metropolitan statistical area with ≥250,000 but <1 million population; small metro: part of a metropolitan statistical area with <250,000 population; micropolitan (non-metro): part of a micropolitan statistical area (has an urban cluster of ≥10,000 but <50,000 population; and non-core (non-metro): not part of a metropolitan or micropolitan statistical area. The 6-level urban-rural classification scheme was collapsed to 3 categories for this analysis. Urbanization was defined as large metro (large central metro and large fringe metro), small/medium metro (medium metro and small metro), and non-metro (micropolitan and non-core).

Appendix Table 2. Age-Adjusted Female Suicide Rates[a] by Census Divisions[b] and Urbanization Level[c] by Mechanism,[d] 2004–2018

Urbanization level[c] for Census divisions[b]	Age-adjusted female suicide rates[a] by mechanism[d] by 3 time periods								
	Suffocation			Firearm			Drug poisoning		
	2004–2008	2009–2013	2014–2018	2004–2008	2009–2013	2014–2018	2004–2008	2009–2013	2014–2018
Large metro									
New England	1.24	1.66	2.32	0.34	0.33	0.42	1.48	1.74	1.69
Middle Atlantic	0.99	1.32	1.86	0.42	0.48	0.57	1.02	1.27	1.41
East North Central	1.18	1.61	1.92	1.05	1.20	1.51	1.58	1.71	1.66
West North Central	1.12	1.71	2.32	1.24	1.50	1.97	2.02	2.33	2.32
South Atlantic	0.99	1.23	1.59	1.74	1.81	1.97	1.83	1.91	1.85
East South Central	0.71	1.06	1.41	2.59	2.81	3.04	1.82	1.60	1.60
West South Central	1.02	1.14	1.64	2.09	2.25	2.57	1.58	1.59	1.51
Mountain	1.43	2.00	2.49	2.51	2.68	3.18	3.22	3.42	3.22
Pacific	1.30	1.55	1.96	0.98	1.04	0.95	1.94	2.01	1.64
Small/Medium metro									
New England	1.39	1.75	2.25	0.66	0.95	0.88	1.57	1.97	2.05
Middle Atlantic	1.06	1.65	2.21	0.92	1.33	1.48	1.51	1.78	1.97
East North Central	1.10	1.59	2.21	1.31	1.50	2.02	2.13	2.17	2.24
West North Central	1.18	1.65	2.78	1.44	1.77	2.17	2.09	2.08	2.11
South Atlantic	1.00	1.22	1.85	2.53	2.97	3.43	2.24	2.30	2.35
East South Central	0.77	1.14	1.57	2.91	3.45	3.71	1.65	1.57	1.59
West South Central	0.97	1.20	1.82	2.33	2.71	3.47	1.55	1.53	1.81
Mountain	1.52	2.28	3.05	2.63	3.27	3.99	3.28	4.06	3.76
Pacific	1.25	1.64	2.43	1.59	1.77	2.03	2.16	2.26	2.08
Non-metro									
New England	1.42	1.64	2.34	1.18	1.83	2.58	1.91	2.10	2.98
Middle Atlantic	1.07	1.35	2.08	1.34	1.99	2.36	1.35	1.74	2.15
East North Central	0.94	1.52	2.12	1.59	1.87	2.28	1.71	1.87	2.14
West North Central	1.01	1.65	2.89	1.77	1.98	2.54	1.50	1.89	1.95
South Atlantic	0.60	1.00	1.45	3.03	3.48	3.91	1.97	1.84	2.01
East South Central	0.59	1.11	1.69	3.66	3.99	4.26	1.51	1.45	1.53

West South Central	0.81	1.18	2.06	3.04	3.61	4.66	1.63	1.61	2.02
Mountain	1.42	2.37	3.55	3.29	3.92	5.38	2.89	3.33	3.14
Pacific	1.88	2.16	3.60	2.96	3.78	3.93	3.18	3.10	2.80

[a]Age-adjusted rates per 100,000 person-years were calculated using the direct method and the 2000 U.S. standard population. Only residents aged ≥10 years were included in the data.
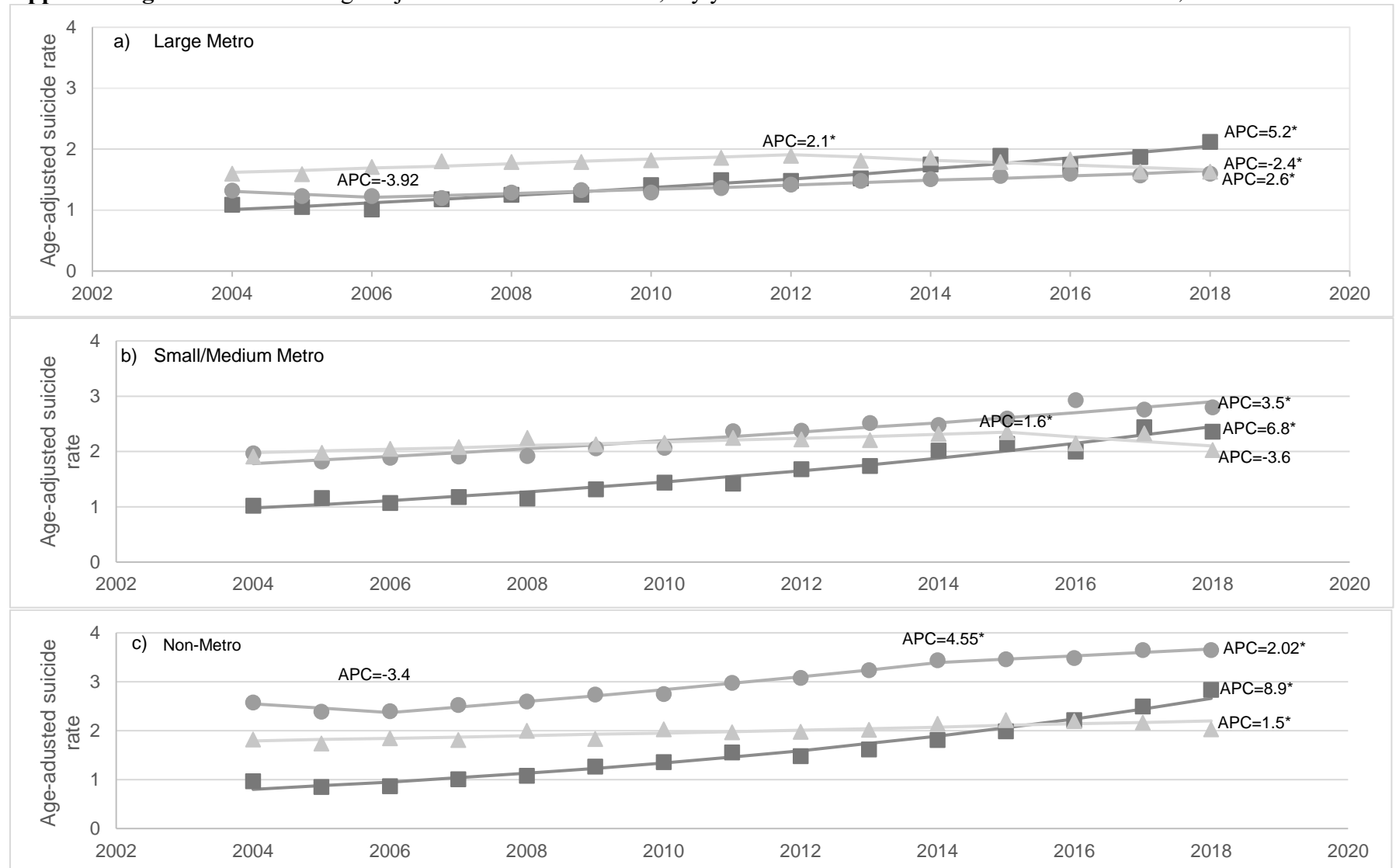
[b]The 9 U.S. Census Bureau divisions are defined as follows, New England (CT, ME, MA, NH, RI, VT), Middle Atlantic (NJ, NY, PA), East North Central (IL, IN, MI, OH, WI), West North Central (IA, KS, MN, MO, NE, ND, SD), South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV), East South Central (AL, KY, MS, TN), West South Central (AR, LA, OK, TX), Mountain (AZ, CO, ID, MT, NM, NV, UT, WY), and Pacific (AK, CA, HI, OR, WA).

[c]The 2013 National Center for Health Statistics 6-level urban-rural classification scheme for counties included large central metro: part of a metropolitan statistical area with ≥1 million population and covers a principal city; large fringe metro: part of a metropolitan statistical area with ≥1 million population but does not cover a principal city; medium metro: part of a metropolitan statistical area with ≥250,000 but <1 million population; small metro: part of a metropolitan statistical area with <250,000 population; micropolitan (non-metro): part of a micropolitan statistical area (has an urban cluster of ≥10,000 but <50,000 population; and non-core (non-metro): not part of a metropolitan or micropolitan statistical area. The 6-level urban-rural classification scheme was collapsed to 3 categories for this analysis. Urbanization was defined as large metro (large central metro and large fringe metro), small/medium metro (medium metro and small metro), and non-metro (micropolitan and non-core).

[d]Suffocation suicides were identified by the ICD-10 underlying-cause-of-death code X70; firearm suicides were identified by the ICD-10 underlying-cause-of-death codes X72-X74; drug poisoning suicides were identified by the ICD-10 underlying-cause-of-death codes X60-X64.

Appendix Figure 1. Trends for age-adjusted female suicide rates,[a] by year and mechanism[b] and urbanization[c] —U.S., 2004–2018.

■ Suffocation Observed Age-Adjusted Rate ——Suffocation Modeled Age-Adjusted Rate

● Firearm Observed Age-Adjusted Rate ——Firearm Modeled Age-Adjusted Rate

▲ Drug Poisoning Observed Age-Adjusted Rate ——Drug Poisoning Modeled Age-Adjusted Rate

*Denotes a significant trend segment (p<0.05).
[a]Age-adjusted rates per 100,000 person-years were calculated using the direct method and the 2000 U.S. standard population. Only residents aged ≥10 years were included in the data.
[b]Suffocation suicides were identified by the ICD-10 underlying-cause-of-death code X70; firearm suicides were identified by the ICD-10 underlying-cause-of-death codes X72-X74; drug poisoning suicides were identified by the ICD-10 underlying-cause-of-death codes X60-X64.
[c]The 2013 National Center for Health Statistics 6-level urban-rural classification scheme for counties included large central metro: part of a metropolitan statistical area with ≥1 million population and covers a principal city; large fringe metro: part of a metropolitan statistical area with ≥1 million population but does not cover a principal city; medium metro: part of a metropolitan statistical area with ≥250,000 but <1 million population; small metro: part of a metropolitan statistical area with <250,000 population; micropolitan (non-metro): part of a micropolitan statistical area (has an urban cluster of ≥10,000 but <50,000 population; and non-core (non-metro): not part of a metropolitan or micropolitan statistical area. The 6-level urban-rural classification scheme was collapsed to 3 categories for this analysis. Urbanization was defined as large metro (large central metro and large fringe metro), small/medium metro (medium metro and small metro), and non-metro (micropolitan and non-core).